

ClimateNews is a snapshot of new and emerging climate change adaptation and mitigation activities in BC's Natural Resource Sector.

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## Auditor General's Report on Climate Change

*BC and Canada reports released*

The BC Auditor General's report *Managing Climate Change Risks: An Independent Audit* was released in February 2018, based on a review of the provincial government's management response to climate change. Overall, the report found that despite having work under way to adapt to and mitigate climate change, the BC government is not adequately managing the risks that climate change poses to the province.

The report found the government's management response lacking in several areas:

- A comprehensive risk assessment and a clear plan to move forward on adaptation have not been completed;

- Government hasn't taken adequate action to reduce emissions, will not meet its 2020 emission reduction target, and is not on the path to meeting its 2050 target;
- Current capacity for dealing with significant climate-related risk areas such as flooding, fire and drought is insufficient and will require government attention.

The report acknowledges the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD) for the adaptation work it has completed and the work it has under way. This includes coordinating monthly natural resource sector meetings on adaptation; creating ministry wide plans for adaptation and requiring that branches and regions do the same; identifying climate sensitive decisions; providing climate related guidance to FLNRORD decision makers; as well as program specific work including enhanced basic reforestation, creation of a flood risk strategy, flood-plain mapping, the BC Drought Response Plan and wildfire initiatives.

In response to the report, Environment and Climate Change Strategy Minister George Heyman issued a statement acknowledging that the government agrees that more action must be taken to manage climate change. The response also outlines actions the government is taking to improve its response to climate change including introducing a new legislated emissions target for 2030, increasing the carbon tax, and investing in clean-growth.

Find the Auditor General of BC's report [here](#).

Find the Minister's statement [here](#).

Related to the BC report, on March 27, 2018, the Government of Canada released their report on *Climate Change Action in Canada*. This collaborative audit encompasses audit work released over the last

18 months by auditors general across Canada, including the work done for the BC report.

Find the Canada-wide report [here](#).

## Report on 2017 Floods and Wildfires Released

BC released the Abbott/Chapman report on the Province's response to the record-setting wildfire and flood events of 2017. The report was commissioned in December 2017 to conduct an independent review of the extreme wildfires and flooding that occurred in 2017.

While climate change is not a central focus of the report, it is an underlying and pervasive theme. The conclusions note "climate change is not going away" and "we, as a province can better address the challenges posed by climate change, and extreme weather events requires accepting that there is a new normal...."

The report makes 108 recommendations of which approximately 40 are related to climate change. Major themes include developing closer relationships with First Nations and municipalities on wildfire response. Forestry recommendations have a relationship to forest carbon and include comment on salvage, prescribed burning, and data requirements. The report also recommends that forest planning be guided by resilience and not determined solely by timber production.

The full report can be found [here](#).

## BC's Carbon Tax

*Where will the money go?*

The provincial carbon tax is set to increase by \$5 per tonne this year. The government has committed to using this to increase the tax rebate for low income households and to fund two approaches to prevent "carbon leakage" – where emissions intensive industries in the province become unable to compete with those in areas with lower carbon taxes. The result of "carbon leakage" is a shift in the location of emissions rather than an overall reduction in emissions.

To prevent "carbon leakage," a new Industrial Incentive program is being created in which the government would pay out up to 100 percent of the carbon tax paid beyond \$30 per tonne to eligible large industrial emitters. The incentive program will be based on how well a given industrial emitter compares to a performance benchmark established based on the lowest emitting facility in that sector in the world. Eligible BC facilities would also be able to apply to an Industrial Investment to support their transition to clean technology alternatives. Both of these approaches have the goal of providing support for industry to ensure that the carbon tax is doing what it is intended to – lowering overall carbon emissions. Government also plans to develop the next phase of green initiatives to facilitate the pathway to BC's climate targets.

## Climate Change Workshops

The Climate Change and Integrated Planning Branch of FLNRORD has been carrying out workshops in all regions of BC as well as in Victoria to collect information on decision points across the ministry

where climate change considerations can be incorporated into decision processes. Information and tools necessary to support these decisions has also been a focus of the workshops.

These workshops are now complete and the information compiled is being organized for presentation to ministry executive levels to gain direction on priorities and next steps for incorporating climate change into the daily business of the ministry.

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## Forest Carbon Initiative / Low Carbon Economy Leadership Fund

The governments of Canada and BC formally completed the Low Carbon Economy Leadership Fund Agreement in March 2018. The Low Carbon Economy Fund (LCEF) is a major component of the Pan-Canadian Framework on Clean Growth and Climate Change which works towards meeting Canada's commitments to the Paris Agreement. Over the next 5 years, LCEF will provide funding to support projects across the country that generate clean growth and reduce carbon pollution. Projects eligible for funding include improving the energy efficiency of buildings, providing support for industries to reduce emissions, and improving the capacity of carbon storage in forests and soils within the forestry and agriculture sectors.

The Low Carbon Economy Leadership Fund (LCEL), as one of two components of the LCEF, will provide \$1.4 billion in funding to provinces and territories to help address climate change and reduce emissions to meet the targets outlined in the Pan-Canadian Framework on Clean Growth and Climate Change.

The funding is only available to provinces and territories that have signed on to this climate plan.

On December 15<sup>th</sup> 2017, the Federal government announced that BC will receive at least \$160 million through the LCEL to support the province's climate objectives. Of this, \$140 million will go towards the Forest Carbon Initiative led by FLNRORD, which will be matched by provincial funding, amounting to a total of \$290 million for FCI as a cost recovery program from 2017/18 to 2021/22.

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## Learning from disaster

*Improving resistance of homes to ignition on the wildland/urban interface*

Following the devastating Fort McMurray fires of 2016, the Institute for Catastrophic Loss Reduction launched an investigation to determine why some homes survived the event with little or no damage while so many others were destroyed. A methodology to evaluate the vulnerability of fire-resistance of homes was developed. Observations were collected on homes near the edge of the wildland/urban interface (WUI) where the fire first transitioned from forest fuel to urban fuel.

Overall, the results of the study showed a strong relationship between a home's survival and its resistance to ignition. Destroyed homes were generally rated with 'High' to 'Extreme' hazard levels and did not meet [FireSmart](#) criteria. Hazardous vegetation/fuel was responsible for the highest proportion of wildfire hazard scores. A large majority of hazardous fuels were planted and landscaping materials (not native vegetation).

On the contrary, surviving homes were rated with 'Low' to 'Moderate' hazard levels and followed

FireSmart guidelines. Salient features of surviving properties included uncluttered yards with few combustible objects, 'Low' to 'Moderate' ratings for structural hazard, and low-flammability surface fuel (i.e. partially greened lawn; restricted or no use of wood mulches).

Recommendations made to improve the resistance of homes to ignition include adoption of FireSmart practices by homeowners, focusing energy on reducing hazard factors around homes and neighbourhoods and increasing resistance of structures.

The Institute for Catastrophic Loss Reduction report can be found [here](#).

## Climate trends in the Cowichan River Valley

Daily weather records over long periods allows for comparison of seasonal and inter-annual variability and the ability to identify trends in climate. A recent study by FLNRORD's Dave Spittlehouse (2017) analyzed long term (>100 years) temperature and precipitation records collected in the Cowichan River valley to identify climate trends for this region. The study found indication of a temperature rise of 0.1°C to 0.3°C per decade, significant at the 99.9% confidence level. However, precipitation trends were difficult to identify and most were not significant at the 90% level.

Find the Cowichan River valley report [here](#).

## Streamflow response to clear-cut logging in the Okanagan

The effects of timber harvesting on streamflow are of particular concern on the Okanagan Plateau. The forested watersheds in this region are the primary

source of domestic, irrigation and industrial water supplies, and support activities such as forestry, cattle grazing, mining and recreation. Concerns about the effect of land use on water supplies and aquatic habitats have been exacerbated by population growth and potential effects of climate change.

A study by FLNRORD's Rita Winkler (et al.) (2016) examined changes in streamflow regime following clear-cut harvesting in the Okanagan region of BC. The 241 Creek watershed, which had previously been clear-cut was compared to the adjacent 240 Creek watershed which was unlogged and served as a control.

The results of the study suggest that clear-cut logging has a significant impact on the timing and yield of streamflow. These shifts in the streamflow regime could have several consequences including channel destabilization, damage to aquatic habitats, and water shortages during early irrigation season.

The study can be found [here](#).

## Not-salvage-harvesting

*A beneficial management strategy for MPB-attacked stands*

The most recent mountain pine beetle (MPB) outbreak in BC killed approximately 54% of the mature lodgepole pine in the province. Tree mortality has impacted hydrology through increased snow accumulation combined with earlier and more rapid snowmelt, as well as reduction in late-summer transpiration. Tree mortality additionally impacts the carbon balance by releasing carbon stored in the wood through decomposition and reducing CO<sub>2</sub> uptake from the atmosphere.

A study by UBC's Gesa Meyer et al. (2017) used a modified version of the 3-PG (Physiological Principles

in Predicting Growth) model to determine the long-term recovery of the water and carbon balances of a stand following MPB attack. The main findings of the study indicate that not-salvage-harvesting MPB-attacked stands is a beneficial management strategy from both carbon sequestration and hydrologic perspectives.

In another study by UBC's Gesa Meyer et al. (2018), the 3-PG model was used to simulate the effects of MPB attack on a stand and the carbon balance components. The results of this study similarly found that stands which were not salvage harvested recovered due to remaining trees and understory within a decade. The stands were able to recover to functioning carbon sinks in the last two years of the study period. This similarly suggests that the management strategy of not-salvage-harvesting can be beneficial for the carbon balance of attacked stands.

Find the 2017 study [here](#).

Find the 2018 study [here](#).

## **Accounting of GHG emissions and removals from forest management**

A recent paper by Joachim Krug (Universität Göttingen, (2018) outlines the development of various approaches to carbon accounting in forest management and discusses the pros and cons to these approaches. The review is based on scientific publications and official IPCC and UNFCC documents. The paper focuses specifically on the challenge to maintain the integrity of the accounting approach, and on resulting incentives for additional investments to increase growth and carbon storage for forest management as an approach to mitigating climate change.

Find the study [here](#).